

Applicant : Guansan Chen  
Serial No. : 10/600,414  
Filed : June 20, 2003  
Page : 8 of 10

Attorney's Docket No.: 13854-050001

### REMARKS

Claims 1-22 are pending, of which claims 1, 11, 21, and 22 are independent. Claims 1, 11, 21, and 22 have been amended. No new matter has been added.

The Examiner rejected claims 1-3, 6-13, and 16-22 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,923,462 to van der Plaats ("van der Plaats"). The Examiner rejected claims 4, 5, 14, and 15 under 35 U.S.C. § 103(a) as being unpatentable over van der Plaats in view of U.S. Patent No. 6,359,726 to Onaka et al. ("Onaka"). Applicant respectfully traverses the rejections.

#### **Section 102(b) Rejections**

Claim 1 stands rejected as anticipated by van der Plaats. Claim 1, as amended, is directed to an optical amplifier that includes means for measuring the input power of an input optical signal and a feedback means for calculating an expected ratio of the pump residual power and the pumping laser input power using data including the power of the input optical signal, determining an actual ratio of the pump residual power and the pumping laser power, and adjusting a current of the pumping laser by comparing the expected ratio with the actual ratio.

In van der Plaats, an optical amplifier is disclosed. The pumping power is adjusted based on the pump input power, measured by photodiode 20, and a pump residual power, measured by photodiode 28. *See* FIG. 1; col. 4, lines 16-63. The input power is not measured in van der Plaats. Furthermore, van der Plaats uses an operational amplifier, including a constant reference voltage,  $V_{ref}$ , for adjusting the pumping input based on a pump power loss based on the pump input and the pump residual output. *See* col. 4, line 58 to col. 5, line 14. The reference voltage is locked to the average inversion of the EDF. *See* col. 4, lines 63-66. The optical amplifier in van der Plaats does not disclose or suggest using the pump input power for calculating an expected ratio of an estimated pump input and pump residual power for a particular input power level. Instead, the amplifier in van der Plaats is designed to keep the pump power loss constant without regard to changes in input power. *See* col. 4, lines 10-15. Therefore, the adjustment of the pump input in van der Plaats does not depend upon the input power of the optical amplifier. Applicant

Applicant : Guansan Chen  
Serial No. : 10/600,414  
Filed : June 20, 2003  
Page : 9 of 10

Attorney's Docket No.: 13854-050001

respectfully submits that claim 1, as well as claims 2-10, which depend from claim 1, are in condition for allowance.

Claim 11 stands rejected as anticipated by van der Plaats. Claim 11, as amended is directed to an optical amplifier that includes error correction means for calculating an expected ratio of the pump residual and the pumping source input using data including a power of the input optical signal, determining an actual ratio of the pump residual and the pumping source input, and adjusting the pumping input signal provided by the pumping source by comparing the expected ratio with the actual ratio. For at least the same reasons set forth above with respect to claim 1, claim 11, as well as claims 12-20 which depend from claim 11, are in condition for allowance.

Claim 21 stands rejected as anticipated by van der Plaats. Claim 21, as amended, is directed to an optical amplifier that includes an error correction controller for calculating an expected ratio of a pump residual and the pumping source input signal using data including a power of the input optical signal, determining an actual ratio of the pump residual and the pumping source input signal, and adjusting the pumping input signal provided by the pumping source by comparing the expected ratio with the actual ratio. The optical amplifier in van der Plaats does not disclose or suggest an error correction controller that calculates an expected ratio of a pumping source input signal and pump residual using data including a power of the input optical signal. Additionally, van der Plaats further does not use the expected ratio and a actual ratio to adjust the pumping input signal. For at least the reasons set forth above with respect to claim 1, claim 21 is in condition for allowance.

Claim 22 stands rejected as anticipated by van der Plaats. Claim 22, as amended, is directed to a method for amplifying an optical signal that includes adjusting a performance of the EDFA by calculating an expected ratio of the pump residual power and the pump input power, determining a real ratio of the pump residual power and the pump input power, and comparing the expected ratio with the actual ratio.

Applicant : Guansan Chen  
Serial No. : 10/600,414  
Filed : June 20, 2003  
Page : 10 of 10

Attorney's Docket No.: 13854-050001

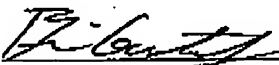
Applicant respectfully requests that all pending claims be allowed.

Pursuant to 37 CFR §1.136, applicant hereby petitions that the period for response to the action dated June 15, 2004, be extended for one month to and including October 15, 2004.

Please apply the one-month extension of time fee of \$110 and any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 14 October, 2004



Brian J. Gustafson  
Reg. No. 52,978

Fish & Richardson P.C.  
500 Arguello Street, Suite 500  
Redwood City, California 94063  
Telephone: (650) 839-5070  
Facsimile: (650) 839-5071

50222681.doc